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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/060,826	02/01/2002	Daniel S. Pickard	IB-1581	9952

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EXAMINER

LEE, WILSON

ART UNIT	PAPER NUMBER
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2821

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/060,826

Applicant(s)

PICKARD ET AL.

Examiner

Wilson Lee

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-24 is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 7, 11-14, 16 and 17 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 8-10, 15 and 18-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Response to Arguments

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections – 35 U.S.C. 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 6, 7, 11-14, 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii (6,080,271)

Regarding Claim 1, Fujii discloses a matching network (See Figure 4A) for coupling an RF power supply (10) to an RF antenna (8) in a plasma generator comprising:

- a resonantly tunable circuit formed of a variable capacitor (22) and a inductor (21) in a series resonance configuration;
- a transformer (transformer within detector 20, See Col. 5, lines 6-24) coupled to the resonantly tunable circuit.

As discussed above, Fujii discloses the claimed invention but does not explicitly disclose that the transformer is a ferrite core type. However, it would have been obvious to one of ordinary skill in the art to use a ferrite core transformer in Fujii in order to magnetize and demagnetize more rapidly. Such knowledge has been well known to a skilled in the art.

Regarding Claim 2, Fujii's transformer in the detector inherently comprises a secondary winding which couples the transformer to the tunable circuit and a primary winding.

Regarding Claim 3, as discussed above, Fujii essentially discloses the claimed invention but fails to explicitly disclose that the secondary winding is a single turn winding and the primary winding is a multi-turn winding. However, it would have been obvious to one of ordinary skill in the art to provide any desired number of winding in Fujii in order to meet the required and desired power output which involves routine skill in the art.

Regarding Claim 6, as discussed above, Fujii essentially discloses the claimed invention but fails to explicitly disclose the turn ratio between the primary winding and secondary winding. However, it would have been obvious to one of ordinary skill in the art to provide any desired turn ratio in Fujii in order to meet the required and desired power output which involves routine skill in the art.

Regarding Claim 7, Fujii, as discussed above, essentially discloses the claimed invention but fails to explicitly disclose that turn ratio is selected to transform the plasma impedance of plasma generator to $50\ \Omega$. However, it would have been obvious to one of ordinary skill in the art that the ratio is selected to transform the plasma impedance of plasma generator to $50\ \Omega$ in order to efficiently render the plasma energy from the RF source. It is held that the provision of adjustability, where needed, involves only routine skill in the art. *In re Stevens*, 101 USPQ 284 (CCPA 1954).

Regarding Claim 11, Fujii disclose an RF power supply connected through a 50 Ω coaxial cable to an input of the matching network and an RF antenna connected to an output of the matching network (See Col. 5, line 34-51).

Regarding Claim 12, as discussed above in the rejections on claims 1, 2 and 11, Fujii discloses the claimed invention.

Regarding Claim 13, Fujii's transformer in the detector inherently comprises a secondary winding which couples the transformer to the tunable circuit and a primary winding.

Regarding Claim 14, as discussed above, Fujii essentially discloses the claimed invention but fails to explicitly disclose that the secondary winding is a single turn winding and the primary winding is a multi-turn winding. However, it would have been obvious to one of ordinary skill in the art to provide any desired number of winding in Fujii in order to meet the required and desired power output which involves routine skill in the art.

Regarding Claim 16, as discussed above, Fujii essentially discloses the claimed invention but fails to explicitly disclose the turn ratio between the primary winding and secondary winding. However, it would have been obvious to one of ordinary skill in the art to provide any desired turn ratio in Fujii in order to meet the required and desired power output which involves routine skill in the art.

Regarding Claim 17, Fujii, as discussed above, essentially discloses the claimed invention but fails to explicitly disclose that turn ratio is selected to transform the plasma impedance of plasma generator to 50 Ω . However, it would have been obvious to one

of ordinary skill in the art that the ratio is selected to transform the plasma impedance of plasma generator to $50\ \Omega$ in order to efficiently render the plasma energy from the RF source. It is held that the provision of adjustability, where needed, involves only routine skill in the art. *In re Stevens*, 101 USPQ 284 (CCPA 1954).

Allowable subject matter

Claims 4, 5, 8-10, 15, 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 21-24 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art neither discloses that the transformer comprises both a single-turn secondary winding that couples the transformer to the tunable circuit and a multi-turn primary winding, and the transformer further comprises a core that is made of a plurality of ferrite cores such as required by claim 21 and a plasma ion or electron generator having the RF antenna mounted therein for inductively generating a plasma, wherein the plasma ion or electron generator is a multi-cusp plasma generator such as required by claim 22.

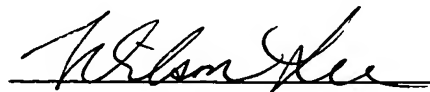
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Wilson Lee whose telephone number is (571) 272-1824.

Papers related to Technology Center 2800 applications may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be considered an official response must be clearly marked "DRAFT". The official fax number is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Wilson Lee', written over a horizontal line.

Wilson Lee
Primary Examiner
U.S. Patent & Trademark Office

4/18/05